VOL. XX, NO. 3 EXTENSION BULLETIN 1924-1925

The Peach-tree Borer

How to Control It with Poison Gas

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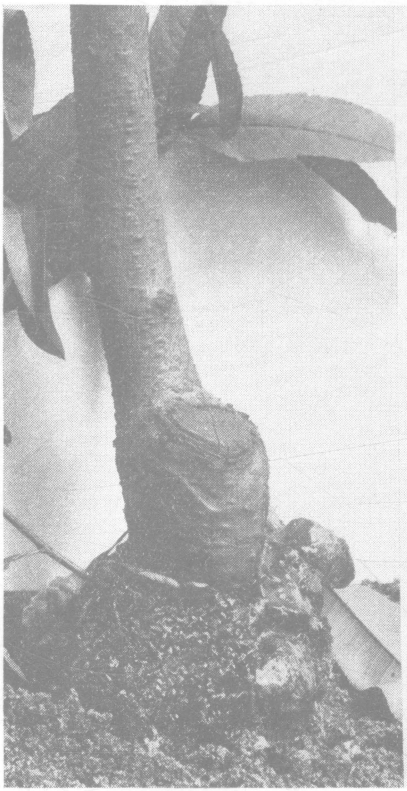

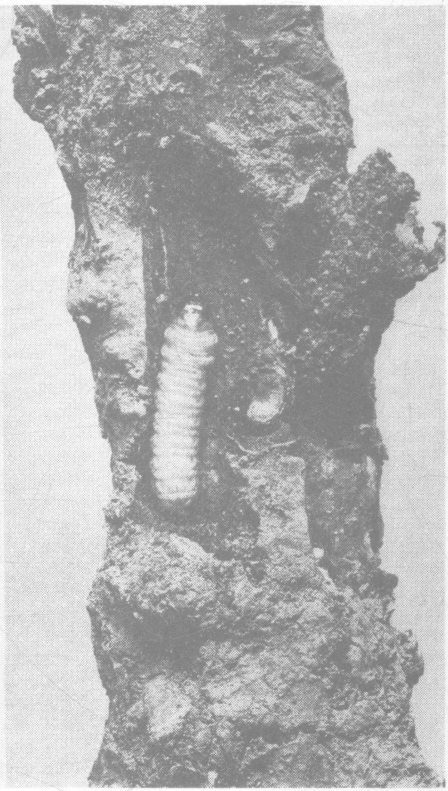

THE PEACH-TREE BORER AND ITS WORK
(U. S. Dept. Agriculture)

Fig. 1.—Exudation of gum at base of infested tree.

Fig. 2.—The borer and its cocoon at root crown of 2-year-old peach tree.

The Ohio State University, Cooperating with the United States Department of Agriculture, Agricultural College Extension Service, H. C. RAMSOWER, *Director*

FREE—Cooperative Agricultural Extension Work—Acts of May 8 and June 30, 1914.

Fig. 3.—Work of the lesser peach-tree borer in old pruning scars. This borer must not be confused with the peach-tree borer. The poison gas method cannot be used in combating the lesser peach-tree borer. *(Bulletin 307, Ohio Agricultural Experiment Station)*

THE PEACH-TREE BORER

HOW TO CONTROL IT WITH POISON GAS

The peach-tree borer has long been a difficult problem to peach growing. No peach tree is exempt from its damage and many have been killed by it. Control until recently consisted of cutting out by hand the partially matured borers in their channels within the live wood at the base of the tree. This, while effective, was costly, and resulted in damage to the tree from knife wounds while frequently the borers were overlooked.

Since the discovery that the chemical, paradichlorobenzene, may be safely used to control the pest, many tests have been made to determine the most satisfactory methods of application and the possibility of its use on trees of all ages. The proper use of the chemical results in excellent control of the borers without damage to the tree, and is now considered the standard method of control. The following pages discuss in question and answer form the insect, and how to use the chemical in treating peach trees to prevent damages from the peach-tree borer.

Questions About Controlling the Peach-tree Borer

What is the peach-tree borer?

It is a yellowish-white larva with dark-red head and is about 1 inch long when full-grown. The borer lives from October to June in the live wood of the trunk, usually at or just below ground surface. Its presence is indicated by the exuding gum at the point of attack. (See Fig. 1.)

Where does it damage the tree?

At or below the ground surface, where it girdles the tree.

How can I tell if a tree has borers in it?

By the presence of exuding gum at or below the ground surface, and in severe cases a sickly appearance and stunted growth of the tree.

What is the adult or parent of this insect?

A clear winged moth, present during July, August, and early September.

Where and when are the eggs laid?

On the bark of the trunk usually just above the surface of the soil, during July, August, and early September.

How can the insect be controlled?

By gassing the larvae with paradichlorobenzene.

What is paradichlorobenzene?

A fine, white crystalline chemical, resembling coarse sugar, but slowly giving off a gas heavier than air. This gas is fatal to borers when they are in its presence.

When should it be used to kill the peach-tree borers in Ohio?

In the fall from September 15 to October 10 in northern Ohio, and from October 1 to 25 in southern Ohio.

What amount should be used on full-grown trees?

One ounce per tree.

How should it be applied?

See directions on page 8; also see Fig. 4 for proper method of applying chemical.

What percentage of kill can be expected?

From 90 to 95 per cent when all directions are followed carefully.

Does the chemical damage the tree?

Does not damage trees over 3 years of age when used carefully.

Can it be used safely on young trees in smaller amounts?

From ½ to ¾ ounce per tree can be used safely on trees 3 to 5 years old. It is not advised for 1- or 2-year-old trees.

Will it do effective work in all kinds of soils?

Yes.

What effect does soil texture have on the vaporization of the gas?

Vaporization takes place most rapidly in sandy or open soils where the air circulation is more general. The gas is generated slowly in heavy soils, thus requiring a longer exposure.

Should the treatment be made when the soil is wet?

Vaporization is rendered slow by the water in the soil but prolonged exposure results in good killing of the borers, even though application be made while the soil is wet.

Will a heavy rain dissolve the crystals?

No. They are insoluble in water.

Fig. 4.—Paradichlorobenzene applied properly around base of tree

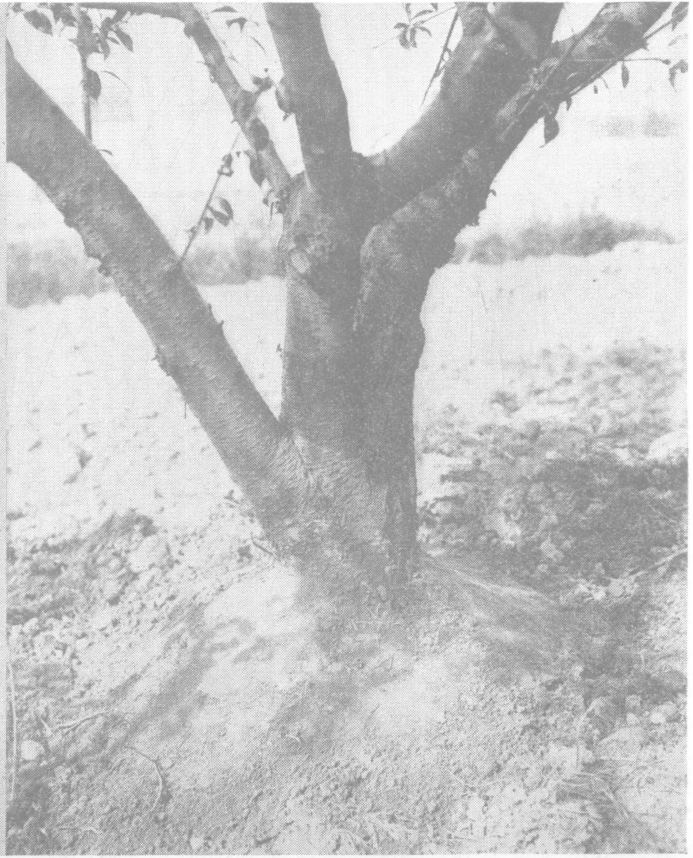

Fig. 5.—Soil mounded against tree to confine gas in soil about channels of borers

How far can the ring of chemical be placed above the borers and still kill them?

From 6 to 10 inches.

What is the object of mounding soil above the crystals?

To confine the gas so that air currents will not carry it away as fast as generated (see Fig. 5).

Is it necessary to remove the mound of soil after evaporation of the crystals is complete?

It is advisable to prevent damage from the prolonged confinement of the gas after the borers are killed. This should always be done where young trees are treated, but is often omitted in fumigating trees over 6 years of age. If the mounds are not removed the gas treatment is rendered difficult in following years because the newly hatched borers eat the tree at the top of the old mound of earth, necessitating the building up of a new foundation for fumigation.

Why is it necessary to remove the protruding gum below ground surface before applying the chemical?

To enable the gas to penetrate the channels of the borers.

What are the small white thread-like maggots found in the gum that is dug from around the base of peach trees?

These are gum maggots which feed upon the gum and are not injurious to the tree. They are often mistaken for the peach-tree borer which is farther in the tree under the gum, and usually responsible for it.

How can I kill the borers in the tree trunk if they are above the ground surface?

If only a few inches above the surface, build up the soil to just above the point of injury. Then place the ring of chemical and mound of earth on this built-up foundation. If higher up on the trunk, cut them out carefully with a knife.

How long should the crystals be allowed to remain about the tree?

From 2 to 3 weeks for 3- to 5-year-old trees, and from 4 to 6 weeks for older ones. This depends upon the soil texture, temperature, and moisture. Fumigation will be completed soonest in porous, warm, dry soil. If the soil is cold and water-soaked after application, leave chemical exposed longer or until the crystals have disappeared.

Can paradichlorobenzene be kept over from one year to another?

Yes, if it is kept in a tight container. Exclude the air as much as possible.

Should the gas method ever be used in the spring?

Not unless the fall application has not been made and the life of the trees is threatened by the borers. In that case apply in May when the soil is warm and be sure to remove the mounds when the crystals have vaporized. Not as good killing is obtained in the spring, owing to the large size of the borers and their position deep under the bark.

Is the use of paradichlorobenzene detrimental to the health of the person applying it?

No.

What does the treatment cost per full-grown tree?

From 3 to 5 cents per tree.

What does paradichlorobenzene cost?

From 20 to 50 cents per pound, depending upon the quantity ordered.

Can it be applied to apple trees to kill apple-tree borers?

No, it is likely to kill the apple trees and is only partially effective against the borers.

Will it be necessary to treat the trees every fall?

Probably not, except to clean up a serious general infestation where peach trees nearby are not treated.

Will its use year after year injure the trees?

Trees treated yearly for several years have not been injured.

Where can paradichlorobenzene be obtained?

It can be obtained from or ordered through local dealers in insecticides. It is not obtainable from drug stores.

Directions for Using Paradichlorobenzene

Age of Trees.—Use only on trees 3 years of age or older.

How Much.—Use 1 ounce on full-grown trees and from ½ to ¾ ounce on trees from 3 to 5 years old, depending on size of tree. Weigh out the chemical and obtain a measure that, when filled, holds the right amount. Do not use more than 1½ ounces for trees with extra large trunks.

When.—Apply in September or early October when the soil is dry. This will kill the borers while young, and after all eggs are hatched.

Preparation.—Clear off the trash about the base of the tree for a distance of 6 inches from the trunk. Do not dig into the surface crust more than necessary. If considerable gum is present about the base of tree, remove the bulk of it. Have the soil surface level with the point of highest exudation of sawdust or gum, and if necessary mound the dirt to this point. The greatest number of borers will be killed if this is observed, as the gas given off by the chemical is heavier than air and is most effective below the application.

Application.—The fine crystals of paradichlorobenzene are then evenly distributed in a narrow, continuous circular band on the soil about the tree. Place this ring about 2 inches from the trunk. Have the band about 1 inch wide, and none of it closer than 1 inch to the trunk (or large roots), otherwise injury might result.

Mounding.—Place several shovels of soil (free from trash) over the ring of chemical. Pour the first shovelfuls of fine soil carefully and slowly against the base of the tree. Cover chemical about 3 inches deep with a cone of earth. Compact this with the back of the shovel or with the foot.

Airing.—Four weeks after application, remove the mound of earth from the base of tree below the depth of application. If the soil has been wet, wait from 5 to 6 weeks before uncovering. Trees from 3 to 4 years old should be aired in from 2 to 3 weeks. This is a precaution against possible injury to the trees and should always be done to young trees.